AMENDMENTS TO THE SPECIFICATION:

Please replace the paragraph beginning on page 2, line 27, and ending on page 3, line 7, with the following amended paragraph.

Prior art image processing systems, such as, for example, personal computers, desktop publishing systems, reprographic systems, and document processors, such as, for example, devices operating in a xerographic environment, are concerned with the art of color conversion or transformation. An image described in terms of a first color coordinate system or color space is often ~~be~~ rendered using a device that operates in a second color space. For example, an image described in terms of one of the well-known CIEXYZ, CIEL*a*b*, or standardized RGB color spaces, is often rendered with a device that operates in a CMYK color space. Therefore, many techniques are available for converting a color specification or description from one color space to another.

Please replace the paragraph beginning on page 16, line 31, and ending on page 17, line 20, with the following amended paragraph.

Once a full set of non-neutral colorant values (CMYC'M'Y') is determined, a redundant colorant undercolor removal step **642** is applied. For example, an undercolor amount u is calculated from:

$$u = MIN(C+C', M+M', Y+Y')$$

Preferably, only a fractional amount K_f of the undercolor amount u is removed from the non-neutral colorant amounts. For example the fractional amount is calculated from the equation:

$$K_f = f * u$$

Where f is a predetermined fractional variable or constant. For example, the value of f is a function of the color. For instance, f is a function of u. When u is large (as in regions of shadow) f is one. As u decreases (as in lighter regions) f decreases as well and less under color is removed. K_f is used to fractionally

reduce the non-neutral colorant amounts by a corresponding amount in a manner best explained through the use of the following exemplary equations:

$$C_f = C(1-K_f/(C+C'))$$
$$C_f' = C'(1-K_f/(C+C'))$$

Please replace the paragraph beginning on page 19, line 1, and ending on page 19, line 33, with the following amended paragraph.

For example, before transformation, extreme points in the color specifications space **1210,** which correspond to pure maximum or minimum amounts of colorant, are collinear. For instance, a white point **1216** (corresponding to a minimal neutral colorant value), a maximal second colorant C' point **1222**, and a maximal first colorant point **1228** all lie on a non-neutral colorant axis **1234**. This distribution ensures that a pure maximally saturated color specification (C_0 = 1, K_0 = 0) is mapped to the more saturated first colorant C. The specification for the lighter, less saturated colorant C' should be placed closer to the white point with respect to the non-neutral axis than the point that maps to C (to account for its saturation) and at least as far down the neutral axis (to account for its lightness). This leaves the C' point positioned along the base of the triangular region 1242. Nevertheless, the distribution is problematic. The strategy here is to designate a region for which only the colorant C and C' and the white of the media are selected. The area of this region maps to the various combinations of C, C' and white. The regions should be bounded by the three points. However, since the points are placed in a line in the color specification space, as driven, or based on, saturation and lightness characteristics of the colorants, the region bounded by the points has zero area. There is no two-dimensional region that can be used to map to the two-dimensional color. For this reason and others, this collinear distribution of colorant extremes is referred to as a degenerate case, or distribution. The transformation step **1114** removes the degenerate nature of the distribution, while allowing the advantageous saturated color specification mapping to be maintained.

Please replace the paragraph beginning on page 23, line 6, and ending on page 24, line 8, with the following amended paragraph.

For example, while the second colorant C' may be best for rendering saturated cyan, the first colorant C may be best in a cyan-yellow combination to produce a saturated green. A procedure for accounting for this situation is to blend between mappings that map saturated color specifications to C and mappings that map saturated color specifications to C'. Therefore, in a blending step ~~**1550** (See FIGURE 11)~~ (see **1858** of FIGURE 18) a first colorant placement and mapping that relates saturated cyan to the first colorant C, such as that described in reference to FIGURES 7 - 9, and a second colorant placement and mapping that relates saturated cyan to the second colorant C', such as described in relation to figures 12-15 are blended together. For instance, if C_a and C'_a are colorant amounts determined by the first placement and mapping and C_b and C'_b are colorant amounts determined by the second placement and mapping, then blending equations such as:

$$C = w^*C_a + (1-w)C_b$$
$$C' = w^*C'_a + (1-w)C'_b$$

where w is a weighting factor ranging between, for example, one for green pixels, and zero for cyan pixels, can be used to determine appropriate colorant amounts. Preferably, w is the ratio of the yellow value to the maximum of the colorant values in the classic color or input color specification:

$$w = Y_0/\max(C_0,M_0,Y_0)$$

Alternatively, the amount of yellow before undercolor removal may be used as the weighting factor ($w = Y_1 = 1\text{-}B$). Those of ordinary skill in the art will understand how to use this technique to blend other colorant amounts. Those of ordinary skill in the art will understand how to apply this description to calculate weighting factors for other colorants.

Please replace the paragraph beginning on page 24, line 9, and ending on page 24, line 12, with the following amended paragraph.

Of course, however it is arrived at, once a full set of non-neutral colorant values (CMYC'M'Y') is determined, a redundant colorant undercolor removal step ~~1560~~ (e.g., see **1862** of FIGURE 18) is applied to generate, for example, a CMYC'M'Y'K pixel.

Please replace the paragraph beginning on page 28, line 11, and ending on page 29, line 15, with the following amended paragraph.

The specification and placement selector **1734** receives information regarding the whole input pixel. Additionally the specification and placement selector **1734** has access to the system configuration information repository **1738**. The specification and placement selector **1734** uses pixel information and information from the configuration repository **1738** to determine an appropriate placement of maximal colorant points in a color specification region, and whether or not the input color specification $\mathbf{X_0K_0}$ should be transformed. For example, the specification and placement selector **1734** determines which of a set of embodiments of the method **600** or extended method **1100** is most appropriate for mapping the input color specification $\mathbf{X_0K_0}$ to output colorant pairs, and the best placement of maximal colorant points and region divisions in the color specification space. For instance the colorant characteristics of colorants used in a ~~target-rendering~~ target rendering device are described in the system configuration information repository **1738**. The saturation and lightness as well as perhaps the cost and light fastness and/or other characteristics of the colorants are considered. Additionally, whether or not the color specification $\mathbf{X_0K_0}$ is a primary color or part of a secondary color may be considered. For example, If the blender **1636** is not included, then the over all color specified by the whole pixel may be considered in the selection of a specification transformation or maximal colorant point placement. The specification and placement selector **1734** controls, for example a logical switch **1750**, to direct either a transformed color specification generated by the specification transformer **1728**, (if, for example, an embodiment of the extended method **1110**

is the most appropriate mapping technique) or an untransformed color specification, to the first **1720** and/or second **1724** region mappers. Additionally the specification and placement selector **1734** passes selected mapping technique and maximal colorant placement information to the region selector **1742**.

Please replace the paragraph beginning on page 29, line 24, and ending on page 29, line 32, with the following amended paragraph.

The specification transformer **1728** transforms an input color specification to a new color specification region when such a transformation is useful. For example, the specification transformer **1728** applies the transformation described in reference to FIGURES 12 and 13 in order to take advantage of ~~characteristic of maximal~~ the maximal colorant placement of FIGURE 12 while providing the ability to apply the mapping described in reference to FIGURES 7-9.